formed plantar orthosis (significant interaction at the level $P < 0.05$ with 2×2 Anova with repeated measurements). These modifications were not found in the eyes closed condition.

Discussion and conclusion.– The reduction of sways and of medial-lateral amplitude could stem from a continuous plantar stimulation (via cutaneous mecano-receptors) with the formed sole [2]. Nevertheless, the integration of this extra stimulation is effective only in the conditions where the visual afference is not affected.

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P059-e

Ankle foot orthosis improves gait in a patient with neuropathic arthropathy

M. Jaouen *, A. Delarque, J.-M. Viton, L. Bensoussan, E. Dobbels, G. Lotito
Pôle de MPR, hôpital La Timone, CHU Timone, boulevard Jean-Moulin, 13005 Marseille, France
**Corresponding author.*
E-mail address: mathias.jaouen@ap-hm.fr.

Keywords: Ankle; Foot; Orthosis: Patellar tendon bearing; orthosis; Sarmiento orthosis; Neuropathic arthropathy; Gait balance analysis

Introduction.– Sensory-motor neuropathy is a common problem in physical medicine and rehabilitation. Foot neuropathic arthropathy is one of its common complications. Patellar tendon bearing is recommended to consolidate the foot. But the interest of this discharge associated with an orthosis for the purpose of functional improvement in walking was not described.

Observation.– This is about a 41-year-old patient, with a sensory-motor neuropathy of the lower limbs, a distal bilateral foot drop, walking with two standard model ankle foot orthosis and footwear. He has recently presented a neuropathic arthropathy of the left foot then a heart failure due to purpura thrombotic thrombocytopenic. Since he has left foot pain when walking (VAS 7/10), reduced walking distance, effort dyspnea stage III, and walks with two crutches. Two ankle foot orthosis were made on molding, to compensate the foot drop, and left a semi-discharge to consolidate the neuropathic arthropathy. The quantitative analysis of walking showed an improvement in walking speed of 62.5% (from 0.51 m/s to 0.8 m/s). The quantitative analysis of balance showed an improvement of 56% with eyes opened (2.54 cm to 4.32 cm^2) and 49% with eyes closed (8.41 cm to 17.27 cm^2). The patient didn't use crutches to walk any more, didn't have pain or dyspnea anymore and walking is no longer limited in distance.

Discussion.– In a patient with a peripheral sensory-motor neuropathy, the association of a semi-discharge and an ankle foot orthosis has improved walking, but also the balance, and autonomy. He accepted immediately, no complication was found. However, the assessment is still too early to measure the full benefits of the orthosis and the effectiveness on the consolidation of the foot neuropathic arthropathy.

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P060-e

Test-retest intra- and interobserver reliability of 3D scapular kinematics measurements for analytic movements and activities of daily living

A. Roren [a,*], F. Fayad [b], A. Roby-Brami [c], S. Poiraudeau [d], M. Lefèvre-Colau [d]
[a] *CHU Cochin, 27, rue du Faubourg-Saint-Jacques, 75014 Paris, France*
[b] *Service de rhumatologie, hôpital Hôtel-Dieu de France, université Saint-Joseph, France*
[c] *Instituts des systèmes intelligents et de robotique, université Pierre-et-Marie-Curie, France*
[d] *Service de rééducation et de réadaptation de l'appareil locomoteur et des pathologies du rachis, CHU Cochin, France*
**Corresponding author.*
E-mail address: alexandra.roren@cch.aphp.fr.

Keywords: Scapula; 3D analysis; Kinematics; Reliability; Electromagnetic device; Activities of daily living

Introduction.– An electromagnetic device allows non invasive and accurate 3D scapula kinematics measurements. The acromial method that we used allows dynamic continuous measurement thanks to a skin surface sensor glued to the acromion. Test-retest intra- and interobserver reliability of 3D scapular kinematics have only been partially assessed for analytical movement and never for functional tasks.

Objective.– This study aimed to assess test-retest intra and interobserver reliability of 3D scapular kinematics for arm elevation in sagittal and frontal plane and for two activities of daily living (ADL), hair combing and back washing.

Methods.– Test-retest intra and interobserver reliability of both shoulders of 15 healthy subjects were assessed at rest, at 30° and at 90° of arm elevation for arm elevation in sagittal and frontal plane and for hair combing; at rest and at 30° of arm elevation for back washing. Reliability was assessed using the intraclass correlation coefficient (ICC), the standard error of measurement (SEM), the small detectable difference (SDD) and the Bland and Altman's graphical method.

Results.– Intra-observer reliability was good to excellent for every scapular rotation for both arm elevation in isolated planes and for ADL (ICC ranged from 0.64 to 0.95). Interobserver reliability of scapular rotations was fair to excellent for arm elevation in isolated planes (ICC ranged from 0.49 to 0.92) and poor to excellent for ADL (ICC ranged from 0.35 to 0.89), Interobserver reliability of scapular protraction/retraction showed the lowest ICC. For both test-retest intra and interobserver reliability, the SEM and SDD remained low and Bland and Altman's graphical method showed the good repeatability of the method of measurement.

Conclusion.– In the hands of a single observer, dynamic measurements of the scapula kinematics is adequate for both clinical practice and research. The interobserver reliability of scapular protraction/retraction must be improved.

Further reading

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